




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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,208	10/14/2003	Xudong Fan	58392US002	4078
32692	7590	02/15/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			ROSENBERGER, RICHARD A	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			2877	

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/685,208	<b>Applicant(s)</b> FAN ET AL.	
	<b>Examiner</b> Richard A. Rosenberger	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-24 is/are allowed.
- 6) ☒ Claim(s) 25, 26 and 28-36 is/are rejected.
- 7) ☐ Claim(s) 27, 37 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/13/04; 2/24/05; 2/25/05</u> | 6) <input type="checkbox"/> Other: ____  |

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25, 26, 29-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al (US 2004/0196465).

Arnold et al is based upon a provisional application, so it has an effective filing date of 12 December 2002, and is thus available under at least 35 USC 102(e).

Independent claim 25 calls for "a microresonator" the structure of which comprises "a body ... at least a surface portion of the body being porous". The language in the claim "operative as a microresonator, defining whispering gallery modes at at least a first wavelength" is only a statement of potentiality or possibility. The claim does not claim any structure in which whispering gallery modes are produced, nor does it claim production of whispering gallery modes.

The reference, on page 9, in paragraph [0137], refers to "porous silica beads"; in the context of the reference these would at least obviously be "microspheres" of the type otherwise discussed in the reference. Due to their size and material, such beads will be "operative as a microresonator" with "whispering gallery modes"; this is all claim 25 requires, whether or not there is any recognition of this capability is not relevant because the claims merely call for the inherent capability.

The disclosed "porous silica beads" are substantially spherical as in claims 26, and at least obviously are "formed entirely from porous material" as in claim 28.

The beads can be conceived of as having a porous outer layer and a core as in claim 29; the claim does not state that, for example, the core is not also porous. So conceived as a core and outer layer, the outer layer and core can be conceived of as having a common center (claims 30) or not (claim 31), and the layer can be conceived of as being non-uniform (claim 32); the claim does not define the core and outer layer structurally. So conceived, the core would comprise silica (claim 35).

As the beads are described as being "porous silica beads" they comprise a porous silica material (claim 33). Using known silica materials, such as calcined porous silica from which unwanted material has been removed by heat (claim 34), would have been obvious. It would have been obvious to choose a porosity of between 10% and 90% (claims 36) for the beads of the reference; not the large range of the claimed porosities, making it difficult to avoid meeting the claimed limitation.

3. Although the art teaches a porous silica structure that could be used as microresonator with at least one whispering gallery mode (see above), it does not appear to teach using such porous structures in such a manner; thus claims 1-24, which claim more than the mere possibility or potentiality of such use, appear to be allowable.

The art does not appear to teach a porous body usable as a microresonator with a whispering gallery mode wherein the body is substantially planar, as in claim 27.

Although the Arnold reference discusses various surface modifications to the beads,

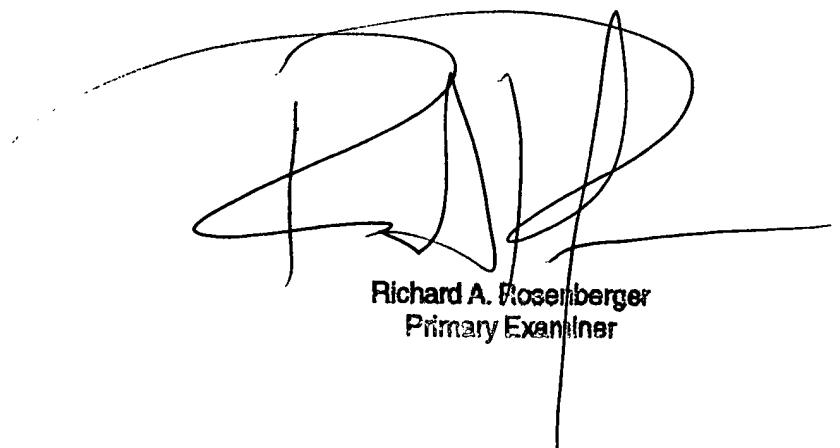
Art Unit: 2877

that reference does not state that any of the modifications are surfactant-templated coatings (claims 37) or comprise an optically active coating (claim 38). Thus these claims appear to contain allowable subject matter, but are objected to as being dependent from unallowed parent claim 25, but would be allowable if rewritten in independent form including all of the limitations of their parent claim.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger  
13 February 2006



Richard A. Rosenberger  
Primary Examiner